```
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Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files
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specify a corrected file name or you can enter "IGNORE" to continue
accessing the remaining file names entered.
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                                                         ENTRY    SESSION
FULL ESTIMATED COST                                       0.21       0.21

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=> osteocalcin and bone and fracture
L1           11 FILE AGRICOLA
L2          127 FILE BIOTECHNO
L3            0 FILE CONFSCI
L4            0 FILE HEALSAFE
L5            0 FILE IMSDRUGCONF
L6          169 FILE LIFESCI
L7            0 FILE MEDICONF
L8          269 FILE PASCAL

TOTAL FOR ALL FILES
L9          576 OSTEOCALCIN AND BONE AND FRACTURE

=> gamma-carboxylated osteocalcin
L10           1 FILE AGRICOLA
L11           4 FILE BIOTECHNO
L12           0 FILE CONFSCI
L13           0 FILE HEALSAFE
L14           0 FILE IMSDRUGCONF
L15           6 FILE LIFESCI
L16           0 FILE MEDICONF
L17           7 FILE PASCAL

TOTAL FOR ALL FILES
L18          18 GAMMA-CARBOXYLATED OSTEOCALCIN
```

```
=> osteocalcin and bone and (fragile or fragility or fracture)
L19          13 FILE AGRICOLA
L20         130 FILE BIOTECHNO
L21           0 FILE CONFSCI
L22           0 FILE HEALSAFE
L23           0 FILE IMSDRUGCONF
L24         172 FILE LIFESCI
L25           0 FILE MEDICONF
L26         272 FILE PASCAL

TOTAL FOR ALL FILES
L27         587 OSTEOCALCIN AND BONE AND (FRAGILE OR FRAGILITY OR FRACTURE)

=> l18 and l27
L28           0 FILE AGRICOLA
L29           0 FILE BIOTECHNO
L30           0 FILE CONFSCI
L31           0 FILE HEALSAFE
L32           0 FILE IMSDRUGCONF
L33           0 FILE LIFESCI
L34           0 FILE MEDICONF
L35           0 FILE PASCAL

TOTAL FOR ALL FILES
L36           0 L18 AND L27

=> carboxylated osteocalcin
L37           2 FILE AGRICOLA
L38           7 FILE BIOTECHNO
L39           0 FILE CONFSCI
L40           0 FILE HEALSAFE
L41           0 FILE IMSDRUGCONF
L42          11 FILE LIFESCI
L43           0 FILE MEDICONF
L44          15 FILE PASCAL

TOTAL FOR ALL FILES
L45          35 CARBOXYLATED OSTEOCALCIN

=> l27 and l45
L46           0 FILE AGRICOLA
L47           1 FILE BIOTECHNO
L48           0 FILE CONFSCI
L49           0 FILE HEALSAFE
L50           0 FILE IMSDRUGCONF
L51           3 FILE LIFESCI
L52           0 FILE MEDICONF
L53           3 FILE PASCAL

TOTAL FOR ALL FILES
L54           7 L27 AND L45

=> dup rem
ENTER L# LIST OR (END):l54
DUPLICATE IS NOT AVAILABLE IN 'IMSDRUGCONF, MEDICONF'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
PROCESSING COMPLETED FOR L54
L55           3 DUP REM L54 (4 DUPLICATES REMOVED)

=> d l55 ibib abs total

L55  ANSWER 1 OF 3  LIFESCI    COPYRIGHT 2004 CSA on STN DUPLICATE 1
ACCESSION NUMBER:   2001:73098  LIFESCI
TITLE:              Carboxylation of osteocalcin may be related to
```

bone quality: a possible mechanism of **bone** **fracture** prevention by vitamin K

AUTHOR: Sugiyama, T.; Kawai, S.

CORPORATE SOURCE: Department of Orthopedic Surgery, Yamaguchi University School of Medicine, Ube 755-8505, Japan

SOURCE: Journal of Bone and Mineral Metabolism [J. Bone Miner. Metab.], (20010501) vol. 19, no. 3, pp. 146-149. ISSN: 0914-8779.

DOCUMENT TYPE: Journal

FILE SEGMENT: T

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Vitamin K is essential for the carboxylation of glutamic acid residues, such as **osteocalcin**. Recent studies have reported that vitamin K reduces vertebral and hip **fractures** without increasing **bone** mass in patients with osteoporosis, suggesting that vitamin K could affect **bone** quality. However, the mechanism is unknown. To investigate the involvement of the carboxylation of **osteocalcin** in **bone** quality, the present preliminary study examined serum **bone** markers and ultrasound velocity, a possible indicator of **bone** quality, in 14 healthy prepubertal children (eight boys and six girls) aged between 7 and 12 years. Venous blood was collected between 0800 and 0900 h after an overnight fast, and serum levels of intact, carboxylated and undercarboxylated **osteocalcin**, **bone** -specific alkaline phosphatase and type I procollagen carboxyl extension peptide were measured. Speed of sound in the right tibia was measured using a SoundScan 2000 Compact (Myriad Ultrasound System, Rehovot, Israel). As a result, there was no significant correlation between the serum **bone** markers and the Z score for the speed of sound. In contrast, the ratio of serum **carboxylated osteocalcin** to serum intact **osteocalcin** was positively correlated with the Z score for the speed of sound ($r = 0.621$, $P = 0.016$). These findings suggest, for the first time, that carboxylation of **osteocalcin** is related to **bone** quality. Further studies are needed to clarify the role of carboxylation of **osteocalcin** in **bone** , and this will provide a new insight into the mechanism of vitamin K treatment in osteoporosis.

L55 ANSWER 2 OF 3 LIFESCI COPYRIGHT 2004 CSA on STN DUPLICATE 2

ACCESSION NUMBER: 2001:41145 LIFESCI

TITLE: Strong Prediction of **Fractures** Among Older Adults by the Ratio of Carboxylated to Total Serum **Osteocalcin**

AUTHOR: Luukinen, H.; Kaekoenen, S.-M.; Pettersson, K.; Koski, K.; Laippala, P.; Levgren, T.; Kivelae, S.-L.; Vaeaenaenen, H.K.

CORPORATE SOURCE: Department of Public Health Science and General Practice, University of Oulu, Oulu University Hospital, Oulu, Finland

SOURCE: Journal of Bone and Mineral Research [J. Bone Miner. Res.], (20001200) vol. 15, no. 12, pp. 2473-2478. ISSN: 0884-0431.

DOCUMENT TYPE: Journal

FILE SEGMENT: T

LANGUAGE: English

SUMMARY LANGUAGE: English

AB We examined serum total **osteocalcin** (TOC), **carboxylated** **osteocalcin** (COC), and their ratio (COC/TOC) by one-step two-site immunofluorescent assays in 87% (n = 792) of all home-dwelling persons of 70 years or older living in a defined area in northern Finland. Other baseline subject-related risk factors of **fractures** were assessed by postal questionnaires, interviews, clinical examinations, and tests. During a 5-year follow-up period, all falls and **fractures** (n = 106) were recorded by regular phone calls and by examining all the medical records yearly. Serum TOC and COC concentrations increased with advancing

age and were higher in women than in men, but corresponding differences were not found in the case of COC/TOC. The adjusted relative risk of **fracture** was elevated in association with low (less than or equal to -1 SD from the mean) COC; hazard ratio (HR, 95% CI) 2.00 (1.20-3.36) and low COC/TOC; HR 5.32 (3.26-8.68), the relative risk being highest in the population older than 80 years; and HR 7.02 (2.42-20.39). The predictive value of low COC/TOC lasted 3 years. The multivariable-adjusted relative risk of hip **fracture** (n = 26) in regard to low COC/TOC ratio was 3.49 (1.12-10.86), as compared with the persons who did not suffer hip **fractures**. Our results suggest that serum COC concentrations and, more strongly, COC/TOC, predict the occurrence of **fractures** in older community-dwelling adults. The risk of **fracture** associated with low COC/TOC equals the hip **fracture** risk previously verified for concomitant high serum undercarboxylated OC concentrations and low **bone** mineral density.

L55 ANSWER 3 OF 3 BIOTECHNO COPYRIGHT 2004 Elsevier Science B.V. on STN
DUPLICATE

ACCESSION NUMBER: 1998:28500970 BIOTECHNO
TITLE: Vitamin K status and **bone** health: An analysis of methods for determination of undercarboxylated **osteocalcin**
AUTHOR: Gundberg C.M.; Nieman S.D.; Abrams S.; Rosen H.
CORPORATE SOURCE: C.M. Gundberg, Department of Orthopaedics, Yale University School of Medicine, New Haven, CT 06510, United States.
E-mail: caren.gundberg@yale.edu
SOURCE: Journal of Clinical Endocrinology and Metabolism, (1998), 83/9 (3258-3266), 33 reference(s)
CODEN: JCEMAZ ISSN: 0021-972X
DOCUMENT TYPE: Journal; Article
COUNTRY: United States
LANGUAGE: English
SUMMARY LANGUAGE: English

AN 1998:28500970 BIOTECHNO

AB Recent studies suggest that **fracture** risk is associated with increased undercarboxylated **osteocalcin**. Methods use differences in binding of undercarboxylated and fully **carboxylated osteocalcin** to hydroxyapatite or barium sulfate. We evaluated these methods and found that results varied with the amount and preparation of the salts. Furthermore, patient samples with differing amounts of total **osteocalcin** could not be directly compared. Errors in the determination of undercarboxylated **osteocalcin** were minimized by expressing data as the percent of the total **osteocalcin** in the sample, and correcting for the basal level of **osteocalcin** using a polynomial equation derived from multiple binding curves. Errors from 5-15% in estimation of undercarboxylated **osteocalcin** were observed without both of these corrections. When differing types of assays were employed (RIA, intact, N- terminal), results also were affected. In normal adults and children and in patients on long-term warfarin therapy, the percent **osteocalcin** not bound to hydroxyapatite was lower when measured with an intact assay than by a polyclonal RIA. Differences were related to the amount of N-terminal **osteocalcin** fragments, which had low affinity for hydroxyapatite and resulted in variable overestimation of undercarboxylated **osteocalcin**. In a kit specific for uncarboxylated **osteocalcin**, we found good discrimination between carboxylated and uncarboxylated intact **osteocalcin**. However, the assay detected large **osteocalcin** fragments and overestimated their concentration by up to 350%. Values for uncarboxylated **osteocalcin** were not different in patients on coumadin compared with normal adults with this kit, but when normalized to the total intact **osteocalcin**, percent uncarboxylated

osteocalcin was greater in patients on coumadin than in controls, as would be expected. Kit values for uncarboxylated **osteocalcin** in normal children were higher than intact values in the same subject, because of the increased reactivity of the kit toward circulating fragments that were: elevated in children. Thus, for estimation of undercarboxylated **osteocalcin**, care must be taken to standardize the hydroxyapatite or barium sulfite used for binding, to correct for the basal level of **osteocalcin** in the sample, to use immunoassays that do not detect small fragments, and to express the results as the percent of the total **osteocalcin** in the sample. Without these precautions, the assessment of undercarboxylated **osteocalcin** is not reliable.

L Number	Hits	Search Text	DB	Time stamp
1	6	(carboxylat$3 near4 osteocalcin) same (fracture or fragility or osteoporosis)	USPAT; US-PGPUB; EPO; DERWENT	2004/08/06 11:09
2	2	(gamma near2 carboxylat$3 near4 osteocalcin) same (fracture or fragility or osteoporosis)	USPAT; US-PGPUB; EPO; DERWENT	2004/08/06 11:25
3	5	((total or intact) near2 osteocalcin) same (fracture or fragility or osteoporosis)	USPAT; US-PGPUB; EPO; DERWENT	2004/08/06 11:25